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Table 6-2
NFPA 472 Professional Competence of Responders to Hazardous Materials Incidents
- Minimum Requirements Applicable to Fairfax County OHSP -

Competencies for the First Responder at the Awareness Level

Introduction

First responders at the awareness level shall be trained to meet all competencies of Chapter 2 of this standard. They also shall receive any additional training to meet applicable DOT, EPA, OSHA, and other appropriate state, local, or provincial occupational health and safety regulatory requirements.

First responders at the awareness level are those persons who, in the course of their normal duties, could be the first on the scene of an emergency involving hazardous materials. They are expected to recognize the presence of hazardous materials, protect themselves, call for trained personnel, and secure the area.

Competencies - Analyzing the Incident

The first responder at the awareness level shall be able to:

- Identify the definition of hazardous materials (or dangerous good, in Canada)
- Identify the DOT hazard classes and divisions of hazardous materials and identify common examples of materials in each hazard class or division
- Identify the primary hazards associated with each of the DOT hazard classes and divisions of hazardous materials by hazard class or division
- Identify the difference between hazardous materials incidents and other emergencies
- Identify typical occupancies and locations in the community where hazardous materials are manufactured, transported, stored, used, or disposed of
- Identify typical container shapes that can indicate hazardous materials
- Identify facility and transportation markings and colors that indicate hazardous materials, including: UN/NA identification numbers; NFPA 704 markings; military hazardous materials markings; special hazard communication makings; pipeline markings; and container markings. Given the NFPA 704 marking, describe the significance of the colors, numbers, and special symbols.

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Competencies - Analyzing the Incident (Continued)

The first responder at the awareness level shall be able to: (Continued)

- Identify U.S. and Canadian placards and labels that indicate hazardous materials.
- Identify the basic information on material safety data sheets (MSDS) and shipping papers that indicate hazardous materials.
- Identify where to find MSDS
- Identify entries on a MSDS that indicate the presence of hazardous materials.
- Identify entries on shipping papers that indicate the presence of hazardous materials.
- Match name of shipping papers found in transportation (air, highway, rail, and water) with the mode of transportation.
- Identify person responsible for having the shipping papers in each mode of transportation.
- Identify where the shipping papers are found in each mode of transportation.
- Identify where the papers can be found in an emergency in each mode of transportation.
- Identify examples of clues (other than occupancy/location, container shape, markings/color, placards/labels, MSDS, and shipping papers) that use the senses of sight, sound, and odor to indicate hazardous materials.
- Describe the limitations of using the senses in determining the presence or absence of hazardous materials.

Given examples of facility and transportation situations involving hazardous materials, the first responder at the awareness level shall identify the hazardous material(s) in each situation by name, UN/NA identification number, or type placard applied. The first responder at the awareness level shall be able to:

- Identify difficulties encountered in determining the specific names of hazardous materials in both facilities and transportation.
- Identify sources for obtaining the names of, UN/NA identification numbers for, or types of placard associated with hazardous materials in transportation.
- Identify sources for obtaining the names of hazardous materials in a facility.

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Competencies - Analyzing the Incident (Continued)

Given the identity of various hazardous materials (name, UN/NA identification number, or type placard), the first responder at the awareness level shall identify the fire, explosion, and health hazard information for each material by using the current edition of the *North American Emergency Response Guidebook*. The first responder at the awareness level shall be able to:

- Identify the three methods for determining the appropriate guide page for a hazardous material.
- Identify the two general types of hazards found on each guide page.

Competencies - Implementing the Planned Response

Given examples of facility and transportation hazardous materials incidents, the local emergency response plan, the organization's standard operating procedures, and the current edition of the North American Emergency Response Guidebook, first responders at the awareness level shall be able to identify the actions to be taken to protect themselves and others and to control access to the scene. The first responder at the awareness level shall be able to:

- Identify the location of both the local emergency response plan and the organization's standard operating procedures.
- Identify the role of the first responder at the awareness level during a hazardous materials incident.
- Identify the precautions necessary when providing emergency medical care to victims of hazardous materials incidents.
- Identify typical ignition sources found at the scenes of hazardous materials incidents.
- Identify ways hazardous materials are harmful to people, the environment, and property at hazardous materials incidents.
- Identify the general routes of entry for human exposure to hazardous materials.

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Competencies - Implementing the Planned Response (Continued)

Given the identity of various hazardous materials (name, UN/NA identification number, or type placard), identify the following response information:

- Emergency action (fire, spill, or leak and first aid)
- Personal protective equipment necessary
- Initial isolation and protective action distances

Given the name of a hazardous material, identify the recommended personal protective equipment from the following list:

- Street clothing and work uniforms
- Structural fire-fighting protective clothing
- Positive pressure self-contained breathing apparatus
- Chemical-protective clothing and equipment

Identify the definitions for each of the following protective actions:

- Isolation of the hazard area and denial of entry
- Evacuation
- Sheltering in-place protection

Identify the shapes of recommended initial isolation and protective action zones.

Describe the difference between small and large spills as found in the table of Initial Isolation and Protective Action Distances.

Identify the techniques used to isolate the hazard area and deny entry to unauthorized persons at hazardous materials incidents.

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Competencies - Implementing the Planned Response (Continued)

Given either a facility or transportation scenario involving hazardous materials, the first responder at the awareness level shall identify the appropriate initial notifications to be made and how to make them, consistent with the local emergency response plan or the organization's standard operating procedures.

Competencies for the First Responder at the Operational Level

Introduction

First responders at the operational level shall be trained to meet all competencies at the first responder awareness levels and the competencies of Chapter 3 of this standard. They shall also receive any additional training to meet applicable United States DOT, EPA, OSHA, and other appropriate state, local, or provincial occupational health and safety regulatory requirements.

First responders at the operational level are those persons who respond to releases or potential releases of hazardous materials as part of the initial response to the incident for the purpose of protecting nearby persons, the environment, or property from the effects of the release. First responders at the operational level are expected to respond in a defensive fashion to control the release from a safe distance and keep it from spreading.

Competencies - Analyzing the Incident

Given examples of both facility and transportation scenarios involving hazardous materials, the first responder at the operational level shall survey the incident to identify the containers and materials involved, determine whether hazardous materials have been released, determine whether hazardous materials have been released, and evaluate the surrounding conditions. The first responder at the operational level shall be able to:

- Given 3 examples each of liquid, gas, and solid hazardous materials, identify the general shapes of containers in which the hazardous materials are typically found.
- Given examples of the following tank cars, identify each tank car by type: (1) nonpressure tank cars with and without expansion domes; (2) pressure tank cars, and (3) cryogenic liquid tank cars.

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Competencies - Analyzing the Incident (Continued)

- Given examples of the following intermodal tank containers, identify each intermodal tank container by type: (1) nonpressure intermodal tank containers; and (2) pressure intermodal tank containers.
- Given examples of the following cargo tanks, identify each cargo tank by type: (1) MC-306/DOT 406 cargo tanks; (2) MC-307/DOT-407 cargo tanks; (3) MC-312/DOT-314 cargo tanks; (4) MC-331 cargo tanks; (5) MC-338 cargo tanks, and (6) dry bulk cargo tanks.
- Given examples of the following facility tanks, identify each fixed facility tank by type: (1) nonpressure facility tanks, (2) pressure facility tanks, and (3) cryogenic liquid tanks.
- Given examples of the following nonbulk packages, identify each package by type: (1) bags, (2) carboys, (3) cylinders, and (4) drums.
- Given examples of facility and transportation containers, identify markings that differentiate one container from another.
- Given examples of the following marked transport vehicles and their corresponding shipping papers, identify vehicle or tank identification marking: (1) rail transport vehicles, including tank cars; (2) intermodal equipment, including tank containers; (3) highway transport vehicles, including cargo tanks.
- Given examples of facility containers, identify markings indicating container size, product contained, and/or site identification numbers.
- Given examples of facility and transportation situations involving hazardous materials, identify the name(s) of hazardous material(s) in each situation.
- Identify the following information on a pipeline marker: (1) product; (2) owner; (3) emergency telephone number.
- Given a pesticide label, identify each of the following pieces of information; then match the piece of information to its significance in surveying the hazardous materials incident: (1) name of pesticide; (2) signal work; (3) pest control product (PCP) number {in Canada}; (4) hazard statement; (5) active ingredient.
- Identify and list the surrounding conditions that should be noted by the first responders when surveying hazardous materials incidents.
- Give examples of ways to verify information obtained from the survey of a hazardous materials incident.

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Competencies - Analyzing the Incident (Continued)

Given known hazardous materials, the first responder at the operational level shall collect hazard and response information using material safety data sheets (MSDS), CHEMTREC/CANUTEC/SETIQ, and contacts with shipper/ manufacturer. The first responder at the operational level shall be able to:

- Match definitions associated with the DOT hazard classes and divisions of hazardous materials, including refrigerated liquefied gases and cryogenic liquids, with the class or division.
- Identify two way to obtain a MSDS in an emergency.
- Using a MSDS for a specified material, identify the following hazard and response information: (1) physical and chemical characteristics; (2) physical hazards of the material; (3) health hazards of the material; (4) signs and symptoms of exposure; (5) routes of entry; (6) permissible exposure limits; (7) responsible party contact.
- Precautions for safe handling (including hygiene practices, protective measures, procedures for cleanup of spills or leaks).
- Applicable control measures, including personal protective equipment.
- Emergency and first aid procedures.
- Identify type of assistance provided by, procedure for contacting and information to be furnished to CHEMTREC/CANUTEC/SETIQ.
- Identify two methods of contacting the manufacturer or shipper to obtain hazard and response information.

Given an incident involving a single hazardous material, the first responder at the operational level shall predict the likely behavior of the material and its container. The first responder at the operational level shall be able to:

- Given two examples of scenarios involving known hazardous materials, interpret the hazard and response information obtained from the current edition of the *North American Emergency Response Guidebook*, MSDS, CHEMTREC/CANUTEC/SETIQ, and shipper/manufacturer contacts.

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Competencies - Analyzing the Incident (Continued)

Given an incident involving a single hazardous material, the first responder at the operational level shall predict the likely behavior of the material and its container. The first responder at the operational level shall be able to: (cont'd)

- Match the following chemical and physical properties with their significance and impact on the behavior of the container and/or its contents: (1) boiling point, (2) chemical reactivity; (3) corrosivity (pH); (4) flammable (explosive) range (LEL & UEL); (5) flash point; (6) ignition (autoignition) temperature; (7) physical state (solid, liquid, gas); (8) specific gravity; (9) toxic products of combustion; (10) vapor density; (11) vapor pressure; and (12) water solubility.
- Identify the differences among the following terms: (1) exposure and hazard; (2) exposure and contamination; and (3) contamination and secondary contamination.
- Identify three types of stress that could cause a container system to release its contents.
- Identify five ways in which containers can breach.
- Identify four ways in which containers can release their contents.
- Identify at least four dispersion patterns that can be created upon release of a hazardous material.
- Identify the three general time frames for predicting the length of time that exposures can be in contact with hazardous materials in an endangered area.
- Identify health and physical hazards that could cause harm.
- Identify health hazards associated with the following terms: (1) asphyxiant; (2) chronic health hazard; (3) convulsant; (4) irritant/corrosive; (5) sensitizer/allergen.

The first responder at the operational level shall estimate the potential harm within the endangered area at a hazardous materials incident. The first responder at the operational level shall be able to:

- Identify a resource for determining the size of an endangered area of a hazardous materials incident.
- Given the dimensions of the endangered area and the surrounding conditions at a hazardous materials incident, estimate the number and type of exposures within that endangered area.
- Identify resources available for determining the concentrations of a released hazardous material within an endangered area.

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Competencies - Analyzing the Incident (Continued)

The first responder at the operational level shall estimate the potential harm within the endangered area at a hazardous materials incident. The first responder at the operational level shall be able to: (cont'd)

- Given the concentrations of the released material, identify the factors for determining the extent of physical, health, and safety hazards within the endangered area of a hazardous materials incident.

Competencies - Planning the Response

Given at least two scenarios involving hazardous materials (one facility and one transportation), the first responder at the operational level shall describe the objectives for each problem. The first responder at the operational level shall be able to:

- Given an analysis of a hazardous materials problem and the exposures already lost, identify steps for determining the number of exposures that could be saved by the first responder with the resources provided by the authority having jurisdiction and operating in a defensive fashion.
- Given an analysis of a hazardous materials incident, describe the steps for determining defensive response objectives.

Given simulated facility and transportation hazardous materials problems, the first responder at the operational level shall identify the defensive options for each response objective. The first responder at the operational level shall be able to:

- Identify the defensive options to accomplish a given response objective.
- Identify the purpose for, and the procedures, equipment, and safety precautions used with each of the following control techniques: (1) absorption; (2) dike, dam, diversion, retention; (3) dilution; (4) remote valve shutoff; and (5) vapor suppression.

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Competencies - Planning the Response (Continued)

Given the name of the hazardous material involved and the anticipated type of exposure, the first responder at the operational level shall determine whether available PPE is appropriate for implementing a defensive option. The first responder at the operational level shall be able to:

- Identify the appropriate respiratory protection required for a given defensive option.
- Identify the three types of respiratory protection and the advantages and limitations presented by the use of each at hazardous materials incidents.
- Identify the required physical capabilities and limitations of personnel working in positive pressure self-contained breathing apparatus.
- Identify the appropriate personal protective clothing required for a given defensive option.
- Identify skin contact hazards encountered at hazardous materials incidents.
- Identify the purpose, advantages, and limitations of the following levels of protective clothing at hazardous materials incidents: (1) structural fire-fighting protective clothing; (2) high temperature-protective clothing; and (3) chemical-protective clothing.

The first responder at the operational level shall identify emergency decontamination procedures. The first responder at the operational level shall be able to:

- Identify ways that personnel, personal protective equipment, apparatus, and tools and equipment become contaminated.
- Describe how the potential for secondary contamination determines the need for emergency decontamination procedures.
- Identify the purpose of emergency decontamination procedures at hazardous materials incidents.
- Identify the advantages and limitations of emergency decontamination procedures.

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Competencies - Implementing the Planned Response

Given scenarios for facility and/or transportation hazardous materials incidents, the first responder at the operational materials incidents, the first responder at the operational level shall identify how to establish and enforce scene control including control zones, emergency decontamination, and communications. The first responder at the operational level shall be able to:

- Identify the procedures for establishing scene control through control zones.
- Identify the criteria for determining the locations of the control zones at hazardous materials incidents.
- Identify the basic techniques for the following protective actions at hazardous materials incidents: (1) evacuation; (2) sheltering in-place protection.
- Identify the considerations associated with locating emergency decontamination areas.
- Demonstrate the ability to perform emergency decontamination.
- Identify the items to be considered in a safety briefing prior to allowing personnel to work on a hazardous materials incident.

Given simulated facility and/or transportation hazardous materials incidents, the first responder at the operational level shall initiate the incident management system (IMS) specified in the local emergency response plan and the organization's standard operating procedures. The first responder at the operational level shall be able to:

- Identify the role of the first responder at the operational level during hazardous materials incidents as specified in the local emergency response plan and the organization's standard operating procedures.
- Identify the levels of hazardous materials incidents as defined in the local emergency response plan.
- Identify the purpose, need, benefits, and elements of an IMS at hazardous materials incidents.
- Identify the considerations for determining the location of the command post for a hazardous materials incident.
- Identify the procedures for requesting additional resources at a hazardous materials incident.
- Identify the authority and responsibilities of the safety officer.

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Competencies - Implementing the Planned Response (Continued)

The first responder at the operational level shall demonstrate the ability to don, work in, and doff the personal protective equipment provided by the authority having jurisdiction. The first responder at the operational level shall be able to:

- Identify the importance of the buddy system in implementing the planned defensive options.
- Identify the importance of the backup personnel in implementing the planned defensive options.
- Identify the safety precautions to be observed when approaching and working at hazardous materials incidents.
- Identify the symptoms of heat and cold stress.
- Identify the physical capabilities required for, and the limitations of, personnel working in the personal protective equipment as provided by the authority having jurisdiction.
- Match the function of the operational components of the positive pressure self-contained breathing apparatus provided to the hazardous materials responder with the name of the component.
- Identify the procedures for cleaning, disinfecting, and inspecting respiratory protective equipment.
- Identify the procedures for donning, working in, and doffing positive pressure self-contained breathing apparatus.
- Demonstrate donning, working in, and doffing positive pressure self-contained breathing apparatus.

Given a plan of action for a hazardous materials incident within their capabilities, the first responder at the operational level shall demonstrate defensive control actions set out in the plan. The first responder at the operational level shall be able to:

- Using the type of fire-fighting foam or vapor suppressing agent and foam equipment furnished by the authority having jurisdiction, demonstrate the proper application of the fire-fighting foam(s) or vapor suppressing agent(s) on a spill or fire involving hazardous materials.
- Identify the characteristics and applicability of the following foams: (1) protein; (2) fluoroprotein; (3) special purpose - (a) polar solvent alcohol-resistant concentrates and (b) hazardous materials concentrates; (4) aqueous film-forming foam (AFFF); and (5) high expansion.

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Competencies - Implementing the Planned Response (Continued)

- Given the appropriate tools and equipment, demonstrate how to perform the following defensive control activities: (1) absorption; (2) damming; (3) diking; (4) dilution; (5) diversion; (6) retention; (7) vapor dispersion; and (8) vapor suppression.
- Identify the location and describe the use of the mechanical, hydraulic, and air emergency remote shutoff devices as found on cargo tanks.
- Describe the objectives and dangers of search and rescue missions at hazardous materials incidents.

Competencies - Evaluating Progress

Given simulated facility and/or transportation hazardous materials incidents, the first responder at the operational level shall evaluate the status of the defensive actions taken in accomplishing the response objectives. The first responder at the operational level shall be able to:

- Identify the considerations for evaluating whether defensive options are effective in accomplishing the objectives.
- Describe the circumstances under which it would be prudent to withdraw from a hazardous materials incident.

The first responder at the operational level shall communicate the status of the planned response to the incident commander and other response personnel. The first responder at the operational level shall be able to:

- Identify the methods for communicating the status of the planned response to the incident commander through the normal chain of command.
- identify the methods for immediate notification of the incident commander and other response personnel about critical emergency conditions at the incident.

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Competencies for the Hazardous Materials Technician

Chapter 4 of this standard (**Competencies for the Hazardous Materials Technician**) provides information directed at uniformed fire and rescue personnel who are members of the Hazardous Material Team(s). These guidelines are not provided in this document as they are beyond the authority of uniformed fire and rescue personnel not assigned to such a Team.

Competencies for the Incident Commander

Introduction

The incident commander shall be trained to meet all the competencies for the first responder awareness and operational levels and the competencies of Chapter 5 of this standard. Incident commanders also shall receive any additional training to meet applicable United States DOT, EPA, OSHA, and other appropriate state, local, or provincial occupational health and safety regulatory requirements.

The incident commander is that person who is responsible for all decisions relating to the management of the incident. The incident commander is in charge of the incident site. In addition to being competent at the awareness and operational levels, the incident commander shall be able to:

- Analyze a hazardous materials incident to determine the magnitude of the problem in terms of outcomes by completing the following tasks: (1) collect and interpret hazard and response information from printed resources, technical resources, compute data bases, and monitoring equipment; (2) estimate the potential outcomes within the endangered area at a hazardous materials incident.

- Plan response operations within the capabilities and competencies of available personnel, personal protective equipment, and control equipment by completing the following tasks: (1) identify the response objectives for hazardous materials incidents; (2) identify the potential action options (defensive, offensive, and nonintervention)

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Competencies for the Incident Commander (continued)

available by response objective; (3) approve the level of personal protective equipment required for a given action option; and (4) develop a plan of action, including safety considerations, consistent with the local emergency response plan and the organization's standard operating procedures and within the capability of available personnel, personal protective equipment, and control equipment.

- Implement a response to favorably change the outcome consistent with the local emergency response plan and the organization's standard operating procedures by completing the following tasks: (1) implement an incident management system (IMS), including the specified procedures for notification and utilization of nonlocal resources, e.g., private, state, and Federal government personnel; (2) direct resources (private, governmental, and others) with expected task assignments and on-scene activities and provide management overview, technical review, and logistical support to private and governmental sector personnel; (3) provide a focal point for information transfer to media and local elected officials through the IMS structure.

- Evaluate the progress of the planned response to ensure the response objectives are being met safely, effectively, and efficiently and adjust the plan of action accordingly by evaluating the effectiveness of the control functions.

- Terminate the incident by completing the following tasks: (1) transfer command (control) when appropriate; (2) conduct an incident debriefing; (3) conduct a multi-agency critique; and (4) report and document the hazardous materials incident and submit report to the proper entity.

Competencies - Analyzing the Incident

Given access to printed and technical resources, computer data bases, and monitoring equipment, the incident commander shall collect and interpret hazard and response information not available from the current edition of the *North American Emergency Response Guidebook* or a MSDS. The incident commander shall be able to identify and interpret the types of hazard and response information available from each of the following resources and explain the advantages and disadvantages of each resource: (1) reference manuals; (2) hazardous materials data bases; (3) technical information centers; (4) technical information specialists; and (5) monitoring equipment.

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Competencies for the Incident Commander (continued)

Given simulated facility or transportation incidents involving hazardous materials, the surrounding conditions, and the predicted behavior of the container and its contents, the incident commander shall estimate the potential outcomes within the endangered area. The incident commander shall be able to:

- Identify the steps for estimating the number of exposures within the endangered area.
- Describe the following toxicological terms and exposure values and explain their significance in the risk assessment process: (1) parts per million (ppm); (2) parts per billion (ppb); (3) lethal dose (LD); (4) lethal concentrations (LC); (5) permissible exposure limit (PEL); (6) threshold limit value time-weighted average (TLV-TWA); (7) threshold limit value short-term exposure limit (TLV-STEL); (8) threshold limit value ceiling (TLV-C); and (9) immediately dangerous to life and health value (IDLH).
- Describe the following radiological materials terms and explain their significance in predicting the extent of health hazards and environmental impact in a hazardous materials incident: (1) types; (2) measurement; and (3) protection.
- Identify two methods for predicting the areas of potential harm within the endangered area of a hazardous materials incident.
- Identify the methods available to the organization for obtaining local weather conditions and predictions for short-term future weather changes.
- Explain the basic toxicological principles relative to assessment and treatment of personnel exposed to hazardous materials, including the following: (1) acute and delayed toxicity (chronic); (2) routes of exposure to toxic materials; (3) local and systemic effects; (4) dose response; (5) synergistic effects.

Competencies - Planning the Response

Given simulated facility and transportation hazardous materials incidents, the incident commander shall identify the possible action options (defensive, offensive, and nonintervention) by response objectives for each problem. The incident commander shall be able to describe the steps for determining response objectives (defensive, offensive, and nonintervention) given an analysis of a hazardous materials incident.

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Competencies - Planning the Response (Continued)

Given simulated facility and transportation hazardous materials incidents, the incident commander shall identify the possible action options (defensive, offensive, and nonintervention) by response objective for each problem. The incident commander shall be able to:

- Identify the possible action options to accomplish a given response objective.
- Identify the purpose of each of the following techniques for hazardous materials control: (1) adsorption; (2) neutralization; (3) overpacking; (4) patching; and (5) plugging.

Given situations with known and unknown hazardous materials, the incident commander shall approve the appropriate personal protective equipment for the action options specified in the plan of action in each situation. The incident commander shall be able to:

- Identify the four levels of chemical protection (EPA/NIOSH) and describe the equipment required for each level with the conditions under which each level is used.
- Describe the following terms and explain their impact and significance on the selection of chemical-protective clothing: (1) degradation; (2) penetration; and (3) permeation.
- Describe three safety considerations for personnel wearing vapor-protective, liquid splash-protective, and high temperature-protective clothing.
- Identify the physical and psychological stresses that can affect users of personal protective equipment.

Given simulated facility and transportation hazardous materials incidents, the incident commander shall develop a plan of action consistent with the local emergency response plan and the organization's standard operating procedures that is within the capability of the available personnel, personal protective equipment, and control equipment. The incident commander shall be able to:

- Identify the steps for developing a plan of action.
- Identify the factors to be evaluated in selecting public protective actions, including evacuation and sheltering in-place.

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Competencies - Planning the Response (Continued)

Given the local emergency response plan and/or the organization's standard operating procedures, identify which agency will perform the following: (1) receive initial notification; (2) provide secondary notification and activation of response agencies; (3) make ongoing assessments of the situation; (4) command on-scene personnel (incident management system); (5) coordinate support and mutual aid; (6) provide law enforcement and on-scene security (crowd control); (7) provide traffic control and rerouting; (8) provide resources for public safety protective action (evacuation or shelter in-place); (9) provide fire suppression services when appropriate; (10) provide on-scene medical assistance (ambulance) and medical treatment (hospital); (11) provide public notification (warning); (12) provide public information (news media statements; (13) provide on-scene communications support; (14) provide emergency on-scene decontamination when appropriate; (15) provide operational-level hazard control services; (16) provide technician-level hazard mitigation services; (17) provide environmental remedial action ("cleanup") services; and (18) provide environmental monitoring.

The incident commander shall be able to:

- Identify the process for determining the effectiveness of an action option on the potential outcomes.
- Identify the required safe operating practices/procedures to be followed at a hazardous materials incident.
- Identify the importance of pre-incident planning relating to safety during responses to specific sites.
- Identify procedures for presenting a safety briefing prior to allowing personnel to work on a hazardous materials incident.
- Identify at least three safety precautions associated with search and rescue missions at hazardous materials incidents.
- Identify the advantages and limitations and describe an example where each of the following decontamination methods would be used: (1) absorption; (2) adsorption; (3) chemical degradation; (4) dilution; (5) disposal; (6) evaporation; (7) neutralization; (8) solidification; (9) vacuuming; and (10) washing.
- Identify the atmospheric and physical safety hazards associated with hazardous materials incidents involving confined spaces.

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Competencies - Implementing the Planned Response

Given a copy of the local emergency response plan, the incident commander shall identify the requirements of the plan, including the required procedures for notification and utilization of nonlocal resources (private, state, and Federal government personnel). The incident commander shall be able to:

- Identify the role of the incident commander during an incident involving hazardous materials.
- Identify the duties and responsibilities of the following hazardous materials branch functions within the incident management system: (1) backup; (2) decontamination; (3) entry; (4) Hazardous Materials Branch Management; (5) Hazardous Materials Branch Safety; (6) information/research; (7) reconnaissance; and (8) resources.
- Identify steps for implementing local and related emergency response plans as required under SARA Title III (EPCRA) Section 303 of the federal regulations or other state and local emergency response planning legislation.
- Given local emergency response planning documents, identify the elements of each of the documents.
- Identify elements of incident management system necessary to coordinate response activities at hazardous materials incidents.
- Identify primary local, state, regional, and Federal government agencies and identify the scope of their regulatory authority (including the regulations) pertaining to the production, transportation, storage, and use of hazardous materials and the disposal of hazardous wastes.
- Identify the government agencies and private sector resources offering assistance during a hazardous materials incident and identify their role and the type of assistance or resources available.

Given a simulated hazardous materials incident and the necessary resources to implement the planned response, the incident commander shall demonstrate the ability to direct the resources in a safe and efficient manner consistent with the capabilities of those resources.

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Competencies - Implementing the Planned Response (Continued)

Given a simulated hazardous materials incident, the incident commander shall identify appropriate information to provide to the media and local, state, and Federal officials. The incident commander shall be able to:

- Identify the local policy for providing information to the media.
- Identify the responsibilities of the public information officer at a hazardous materials incident.

Competencies - Evaluating Progress

Given simulated facility and transportation hazardous materials incidents, the incident commander shall evaluate the progress of the plan of action to determine whether the efforts are accomplishing the response objectives. The incident commander shall be able to:

- Identify procedures for evaluating whether the action options are effective in accomplishing the objectives.
- Identify steps for comparing actual behavior of the material and the container to that predicted in the analysis process.
- Determine the effectiveness of the following: (1) personnel being used; (2) personal protective equipment; (3) established control zones; and (4) decontamination process.

Competencies - Terminating the Incident

Given the details of a simulated incident, the local emergency response plan, and the organization's standard operating procedures, the incident commander shall be able to:

- Identify appropriate steps to be taken to transfer command/control of the incident.
- Demonstrate the transfer of command/control.

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Table 6-2
NFPA 472 Professional Competence of Responders to Hazardous Materials Incidents
- Minimum Requirements Applicable to Fairfax County OHSP -

Competencies - Terminating the Incident (Continued)

Given the details of a simulated hazardous materials incident, the incident commander shall conduct a debriefing of the incident. The incident commander shall be able to:

- Describe three components of an effective debriefing.
- Describe the key topics in an effective debriefing.
- Describe when a debriefing should take place.
- Describe who should be involved in a debriefing.
- Identify procedures for conducting incident debriefings at a hazardous materials incident.

Given details of a simulated multi-agency hazardous materials incident, the incident commander shall conduct a critique of the incident. The incident commander shall be able to:

- Describe three components of an effective critique.
- Describe who should be involved in a critique.
- Describe why an effective critique is necessary after a hazardous materials incident.
- Describe what written documents should be prepared as a result of the critique.
- Implement the procedure for conducting a critique of the incident.

Given a simulated hazardous materials incident, the incident commander shall demonstrate the ability to report and document the incident consistent with the local, state, and Federal requirements. The incident commander shall be able to:

- Identify reporting requirement of the Federal, state, and local agencies.
- Identify the importance of documentation for a hazardous materials incident, including training records, exposure records, incident reports, and critique reports.
- Identify steps in keeping an activity log and exposure records for hazardous materials incidents.
- Identify requirements for compiling hazardous materials incident reports found in the local emergency response plan as well as the organization’s standard operating procedures.

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Table 6-2
NFPA 472 Professional Competence of Responders to Hazardous Materials Incidents
- Minimum Requirements Applicable to Fairfax County OHSP -

Competencies - Terminating the Incident (Continued)

Given a simulated hazardous materials incident, the incident commander shall demonstrate the ability to report and document the incident consistent with the local, state, and Federal requirements. The incident commander shall be able to: (Cont'd)

- Identify requirements for filing documents and maintaining records found in the local emergency response plan and the organization's standard operating procedures.

Competencies for Private Sector Specialist Employees

Chapter 6 of this standard (**Competencies for Private Sector Specialist Employees**) does not apply to Fairfax County uniformed fire and rescue personnel.

Competencies for the Hazardous Materials Branch Officer

Chapter 7 of this standard (**Competencies for the Hazardous Materials Branch Officer**) applies to specific personnel within the Fairfax County Fire and Rescue Department Hazardous Material Team(s).

Competencies for the Hazardous Materials Branch Safety Officer

Chapter 8 of this standard (**Competencies for the Hazardous Materials Branch Safety Officer**) applies to dedicated Fairfax County Fire and Rescue Department Hazardous Material Team Safety Officers.

Competencies for the Technician with a Tank Car Specialty

Chapter 9 of this standard (**Competencies for the Technician with a Tank Car Specialty**) applies to specific personnel within the Fairfax County Fire and Rescue Department Hazardous Material Team(s).

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Competencies for the Technician with a Cargo Tank Specialty

Chapter 10 of this standard (**Competencies for the Technician with a Cargo Tank Specialty**) applies to specific personnel within the Fairfax County Fire and Rescue Department Hazardous Material Team(s).

Competencies for the Technician with an Intermodal Tank Specialty

Chapter 11 of this standard (**Competencies for the Technician with an Intermodal Tank Specialty**) applies to specific personnel within the Fairfax County Fire and Rescue Department Hazardous Material Team(s).